

Response Under 37 CFR §1.111

REMARKS

Applicant has studied the Office Action dated Sept. 29, 2003. It is submitted that the application is in condition for allowance. Claims 1, 3, 9, 10, 12, 16, 18 and 20 have been amended, and new independent Claim 21 has been added. Claims 1-21 are pending in view of the above amendments. Reconsideration and allowance of the pending claims in view of the above amendments and the following remarks are respectfully requested. In the Office Action, the Examiner:

- objected to the drawings for failure to comply with the provisions of 37 CFR 1.84(p)(5) for not including reference signs mentioned in the description, failure to comply with the provisions of 37 CFR 1.84(p)(4) for using one reference sign to refer to more than one item and failure to comply with the provisions of 37 CFR 1.84(p)(5) for including reference signs not mentioned in the description
- objected to claim 9 under 37 CFR 1.75(c) as being of improper independent form, objected to claim 16 because of informalities and objected to claim 19 under 37 CFR 1.75(c) as being of improper independent form
- rejected claims 1-4, 7 under 35 U.S.C. § 102(b) as being anticipated by Mark
- rejected claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Mark in view of Paterno
- rejected claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Mark in view of Paterno and Fung
- rejected claim 8-9 under 35 U.S.C. § 103(a) as being unpatentable over Mark in view of Fung
- rejected claim 10-13, 16-17 under 35 U.S.C. § 103(a) as being unpatentable over Mark in view of Fung and Maes
- rejected claim 14-15 under 35 U.S.C. § 103(a) as being unpatentable over

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Mark in view of Fung, Maes and Paterno

- rejected claim 18 under 35 U.S.C. § 103(a) as being unpatentable over Mark in view of Maes
- rejected claim 19-20 under 35 U.S.C. § 103(a) as being unpatentable over Mark in view of Maes and Fung

Objection to the Drawings

As noted above, the Examiner objected to the drawings for failure to comply with the provisions of 37 CFR 1.84(p)(5) for not including reference sign 836 mentioned in the description. The Applicant has amended the specification to cure this defect. Specifically, the reference sign "836" in the specification was corrected to read "336". The Examiner further objected to the drawings for failure to comply with the provisions of 37 CFR 1.84(p)(4) for using reference sign 420 to refer to more than one item. The Applicant has amended the specification to cure this defect. Specifically, the reference sign "420" in the specification was corrected to read "806".

The Examiner further objected to the drawings for failure to comply with the provisions of 37 CFR 1.84(p)(5) for including a group of reference signs (405, 450, 452, 442, 444, 1102, 1104, 1106, 1108, 1110, 1111, 1112, 1114, 1116, 1118, 1120, 1212, 1214, 1216, 1218, 1228, 1302, 1310, 1312, 1314, 1316, 1318, 1320, 1322) not mentioned in the description. The Applicant has submitted proposed corrected drawings (labeled as Annotated Marked-up Drawings) to cure these defects. Specifically, corrected FIGs. 4, 6, 11, 12 and 13 have been submitted, wherein the aforementioned reference signs are omitted. In response to Examiner's approval of the drawing corrections, Applicant will be glad to submit replacement drawings including the drawing corrections. In view of these amendments to the figures, the Applicant respectfully requests that the Examiner withdraw the Examiner's objection to the drawings.

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Objection to Claims 9, 16 and 19

As noted above, the Examiner objected to claim 9 under 37 CFR 1.75(c) as being of improper independent form, objected to claim 16 because of informalities and objected to claim 19 under 37 CFR 1.75(c) as being of improper independent form. With regards to the Examiner's objection to claim 9, the Examiner states that the claim fails to limit the subject matter of a previous claim. The Applicant has amended claim 9 in order to cure this defect. Specifically, claim 9 has been amended to depend from claim 7 instead of depending from claim 8. In view of this amendment, the Applicant respectfully traverses the Examiner's objection to claim 9. For this reason, the Examiner's objection to claim 9 should be withdrawn.

With regards to the Examiner's objection to claim 16, the Examiner states that there is a typographical error in this claim. The Applicant has amended claim 16 in order to cure this defect. Specifically, claim 16 has been amended to include a missing phrase, which is included in claim 8 (as suggested by the Examiner). In view of this amendment, the Applicant respectfully traverses the Examiner's objection to claim 16. For this reason, the Examiner's objection to claim 16 should be withdrawn.

With regards to the Examiner's objection to claim 19, the Examiner states that the claim fails to limit the subject matter of a previous claim. The Applicant points out that although the Examiner refers to claim 19, a review of the Examiner's argument reveals that the Examiner intended to refer to claim 20. This error has been noted and the Applicant hereby proceeds under the assumption that the Examiner intended to object to claim 20. The Applicant has amended claim 20 in order to cure the defect described by the Examiner in the objection. Specifically, claim 20 has been amended to depend from claim 18 instead of depending from claim 19. In view of this amendment, the Applicant respectfully traverses the Examiner's objection to claim 20. For this reason, the Examiner's objection to claim 20 should be withdrawn.

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Rejection under 35 U.S.C. §102(b) over Mark (claims 1-4,7)

As noted above, the Examiner rejected claims 1-4, 7 under 35 U.S.C. § 102(b) as being anticipated by Mark. Independent claim 1 from which claims 2-4, 7 depend has been amended in order to more particularly point out and distinctly claim the Applicant's invention. Specifically, independent claim 1 has been amended to include "a plurality of acoustic transducers that are mechanically tuned to oscillate about their mechanical resonant frequency to substantially maximize audio power output from the at least one tone generator." This amendment renders the Examiner's rejection moot. In view of the foregoing amendments and the remarks below, the Applicant respectfully traverses the Examiner's rejection.

The Mark reference is directed to an auto-dialer suitable for use as a smart card capable of being acoustically coupled to a telephone and being reprogrammed in response to acoustic signals. (See Abstract of the Mark reference.) The programming and other features of the auto-dialer can be enabled or disabled by the auto-dialer in response to persecuted signals, e.g., a string of Dial Tone Multi-Frequency (DTMF) tones. Encryption of calling card and other data into destination telephone numbers is achieved by selectively altering persecuted characteristics of a DTMF tone sequence, such as the duration of tones, the period of silence between tones and the twist between Lo-band and Hi-band tones of DTMF tone pairs in a DTMF tone sequence representing a telephone number. The encryption of data into the telephone number does not affect the ability of standard telephone switching circuitry to recognize the destination number. However, information encrypted into the DTMF signals is undetectable to standard telephone switching circuitry because it is encrypted using DTMF signal characteristics not normally used to represent data. The auto-dialer has a system clock used to drive a pseudo random number generator used in various data security schemes. Calibration features permit the calibration of the audio output and system clock with adjustments being made via the acoustic programming of the auto-dialer with various calibration factors.

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The Mark reference, however, does not teach, anticipate, or suggest, a plurality of acoustic transducers that are mechanically tuned to oscillate about their mechanical resonant frequency to substantially maximize audio power output from the at least one tone generator (as recited for amended independent claim 1). The Mark reference discloses only one transducer (see speaker/microphone 114 of FIG. 2 of the Mark reference). This single transducer of the Mark reference operates over a wide frequency range band and is calibrated to operate over this wide frequency band. This wide frequency band operation, to optimally cover audio generation output such as at various frequencies for DTMF generation, etc., with a single transducer (i.e., a speaker), inherently does not operate at substantially the mechanical resonant frequency of the transducer to maximize its audio power output. The single transducer of the Mark reference, therefore, is not tuned to operate at about its mechanical resonant frequency, as recited for amended independent claim 1. The plurality of acoustic transducers of the Applicant's invention are mechanically tuned to oscillate about their mechanical resonant frequency to substantially maximize audio power output from the at least one tone generator to the microphone transducer of a telephone. Therefore, amended independent claim 1 distinguishes over the Mark reference. The Mark reference does not teach, anticipate, or suggest all of the recited elements of independent claim 1. The operation of the plurality of transducers at substantially the mechanical resonant frequency, according to the presently claimed invention, is a significant advantage that is not taught, anticipated, or suggested by Mark, or by any of the cited prior art references, or by any combination thereof. The main advantage is that it allows maximum audio output while providing the secure card device the ability to significantly conserve battery power to generate such audio output and this helps extend the life of a power source for the card, which is a very desirable feature for consumers. See, for example, the discussion in Applicant's specification from page 11, line 19, to page 12, line 14. The substance of the discussion is set forth below for quick reference.

"Maximizing power output of the tuned transducers 324 is an important feature of the present invention with particular value in applications that utilize audio coupling into a network interface to communicate with the secure access central system. For example, via a telephone station, the universal card 112 can be used to generate tone audio output that is

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audio coupled to the mouthpiece of a telephone station. Since this audio coupling may be less than perfect in most applications, it is important to transmit maximum audio output power to couple into the telephone mouthpiece receiver in less than ideal conditions. For example, in an airport or other public location where there is significant ambient noise, a user of the universal card 112 may be able to hold the card audio output in close proximity to the telephone mouthpiece and still accomplish a reliable delivery of tone signals via the telephone station to the secure access central system.

The universal card 112 through this novel use of selective tone generation circuits and transducers is able to provide a significant tone audio power output for communication, such as via a telephone network, while minimizing the drain on the internal battery power source of the universal card 112. Additionally, the pulse duration limiter 316 can limit the duration of particular tones to a minimum duration required for reliable delivery of the tone signal to the secure access central system. By minimizing the tone duration to its absolute minimum for reliable communication, the universal card 112 additionally conserves battery power and thereby extends battery life, which is an important feature desired by most users."

Therefore, the Examiner's rejection should be withdrawn and it is respectfully submitted that claim 1 is in condition for allowance. Support for the amended claim language "a plurality of acoustic transducers that are mechanically tuned to oscillate about their mechanical resonant frequency to substantially maximize audio power output from the at least one tone generator", as recited for independent Claim 1, and for all dependent claims depending therefrom, respectively, may be found in the originally filed patent application, for example, in the specification on page 10, line 23, to page 11, line 10, and also see FIG. 3. No new matter was added by the amendment.

Further, because independent claim 1 distinguishes over the Mark reference, dependent claims 2-4, and 7, which depend from independent claim 1, also distinguish over the Mark reference. Therefore, the Mark reference does not teach, anticipate, or suggest all of the recited elements of dependent claims 2-4, 7. Therefore, the Examiner's rejection should be withdrawn and it is respectfully submitted that dependent claims 2-4, and 7 are in a condition for allowance.

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Rejection under 35 U.S.C. §103(a) over Mark, Paterno (claim 5)

As noted above, the Examiner rejected claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Mark in view of Paterno. As explained above, independent claim 1, from which claim 5 depends, has been amended in order to more particularly point out and distinctly claim the Applicant's invention. This amendment renders the Examiner's rejection moot. The Applicant respectfully traverses the Examiner's rejection.

For the reasons explained above for amended independent claim 1, dependent claim 5 distinguishes over the Mark reference and the Paterno reference. Neither the Mark reference, nor the Paterno reference, nor a combination of the two, teach, anticipate, or suggest all of the recited elements of claim 5. Therefore, the Examiner's rejection should be withdrawn and it is respectfully submitted that claim 5 is in a condition for allowance.

Rejection under 35 U.S.C. §103(a) over Mark, Paterno, Fung (claim 6)

As noted above, the Examiner rejected claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Mark in view of Paterno and Fung. As explained above, independent claim 1, from which claim 6 depends, has been amended in order to more particularly point out and distinctly claim the Applicant's invention. This amendment renders the Examiner's rejection moot. The Applicant respectfully traverses the Examiner's rejection.

For the reasons explained above for amended independent claim 1, dependent claim 6 distinguishes over the Mark reference, the Paterno reference and the Fung reference. Neither the Mark reference, nor the Paterno reference, nor the Fung reference, nor any combination of the three, teaches, anticipates, or suggests all of the recited elements of claim 6. Therefore, the Examiner's rejection should be withdrawn and it is respectfully submitted that claim 6 is in condition for allowance.

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Rejection under 35 U.S.C. §103(a) over Mark, Fung (claims 8-9)

As noted above, the Examiner rejected claims 8-9 under 35 U.S.C. § 103(a) as being unpatentable over Mark in view of Fung. As explained above, independent claim 1, from which claims 8-9 depend, has been amended in order to more particularly point out and distinctly claim the Applicant's invention. This amendment renders the Examiner's rejection moot. The Applicant respectfully traverses the Examiner's rejection.

For the reasons explained above for amended independent claim 1, dependent claims 8-9 distinguish over the Mark reference and the Fung reference. Neither the Mark reference, nor the Fung reference, nor any combination of these references, teach, anticipate, or suggest all of the recited elements of claims 8-9. Therefore, the Examiner's rejection should be withdrawn and it is respectfully submitted that claims 8-9 are in condition for allowance.

Rejection under 35 U.S.C. §103(a) over Mark, Fung, Maes (claims 10-13, 16-17)

As noted above, the Examiner rejected claims 10-13, 16-17 under 35 U.S.C. § 103(a) as being unpatentable over Mark in view of Fung and Maes. Independent claim 10, from which claims 11-13, and 16-17 depend, has been amended in order to more particularly point out and distinctly claim the Applicant's invention. Specifically, independent claim 10 has been amended to include "a plurality of acoustic transducers that are mechanically tuned to oscillate about their mechanical resonant frequency to substantially maximize audio power output from the at least one tone generator." This amendment renders the Examiner's rejection moot. In view of the foregoing amendments and the remarks below, the Applicant respectfully traverses the Examiner's rejection.

For the same reasons explained above for amended independent claim 1,

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amended independent claim 10 distinguishes over the Mark reference, the Fung reference and the Maes reference. Neither the Mark reference, nor the Fung reference, nor the Maes reference, nor any combination of the three, teach, anticipate, or suggest all of the recited elements of amended independent claim 10. Therefore, the Examiner's rejection should be withdrawn and it is respectfully submitted that amended independent claim 10 is in condition for allowance. Support for the amended claim language "a plurality of acoustic transducers that are mechanically tuned to oscillate about their mechanical resonant frequency to substantially maximize audio power output from the at least one tone generator", as recited for independent Claim 10, and for all dependent claims depending therefrom, respectively, may be found in the originally filed patent application, for example, in the specification on page 10, line 23, to page 11, line 10, and also see FIG. 3. No new matter was added by the amendment.

Further, because independent claim 10 distinguishes over the references above, dependent claims 11-13, and 16-17, which depend from independent claim 10, also distinguish over the cited references above. Therefore, the references above do not teach, anticipate or suggest all of the recited elements of dependent claims 11-13, and 16-17. Therefore, the Examiner's rejection should be withdrawn and it is respectfully submitted that dependent claims 11-13, and 16-17 are in condition for allowance.

Rejection under 35 U.S.C. §103(a) over Mark, Fung, Maes, Paterno (claims 14-15)

As noted above, the Examiner rejected claims 14-15 under 35 U.S.C. § 103(a) as being unpatentable over Mark in view of Fung, Maes and Paterno. As explained above, independent claim 10, from which claims 14-15 depend, has been amended in order to more particularly point out and distinctly claim the Applicant's invention. This amendment renders the Examiner's rejection moot. The Applicant respectfully traverses the Examiner's rejection.

For the reasons explained above for amended independent claim 10, dependent claims 14-15 distinguish over the Mark reference, the Fung reference, the Maes

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reference and the Paterno reference. Neither of the cited references above, nor any combination thereof, teaches, anticipates, or suggests all of the recited elements of dependent claims 14-15. Therefore, the Examiner's rejection should be withdrawn and it is respectfully submitted that claims 14-15 are in condition for allowance.

Rejection under 35 U.S.C. §103(a) over Mark, Maes (claim 18)

As noted above, the Examiner rejected claim 18 under 35 U.S.C. § 103(a) as being unpatentable over Mark in view of Maes. Independent claim 18 has been amended in order to more particularly point out and distinctly claim the Applicant's invention. Specifically, independent claim 18 has been amended to include "at least one acoustic transducer that is mechanically tuned to oscillate about its mechanical resonant frequency to substantially maximize audio power output from the at least one tone generator." This amendment renders the Examiner's rejection moot. In view of the foregoing amendments and the remarks below, the Applicant respectfully traverses the Examiner's rejection.

Neither the Mark reference nor the Maes reference discloses an acoustic transducer that is mechanically tuned to oscillate about its mechanical resonant frequency to substantially maximize audio power output from the at least one tone generator (as disclosed in amended independent claim 18). The Mark reference discloses only one transducer (see speaker/microphone 114 of FIG. 2 of the Mark reference). This transducer of the Mark reference operates over a wide frequency range band and is calibrated to operate over this wide frequency band. The transducer of the Mark reference, therefore, is not tuned to operate at its mechanical resonance frequency range, as recited for amended independent claim 18. The at least one acoustic transducer of the Applicant's invention is mechanically tuned to oscillate about its mechanical resonant frequency to substantially maximize audio power output from the at least one tone generator to the microphone transducer of a telephone. Therefore, amended independent claim 18 distinguishes over the Mark reference and the Maes reference. Neither reference teaches, anticipates, or suggests all of the recited

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elements of independent claim 18. Therefore, the Examiner's rejection should be withdrawn and it is respectfully submitted that claim 18 is in condition for allowance. Support for the amended claim language "at least one acoustic transducer that is mechanically tuned to oscillate about its mechanical resonant frequency to substantially maximize audio power output from the at least one tone generator", as recited for independent Claim 18, and for all dependent claims depending therefrom, respectively, may be found in the originally filed patent application, for example, in the specification on page 10, line 23, to page 11, line 10, and also see FIG. 3. No new matter was added by the amendment.

Rejection under 35 U.S.C. §103(a) over Mark, Maes, Fung (claims 19-20)

As noted above, the Examiner rejected claims 19-20 under 35 U.S.C. § 103(a) as being unpatentable over Mark in view of Maes and Fung. As explained above, independent claim 18, from which claims 19-20 depend, has been amended in order to more particularly point out and distinctly claim the Applicant's invention. This amendment renders the Examiner's rejection moot. The Applicant respectfully traverses the Examiner's rejection.

For the reasons explained above for amended independent claim 18, dependent claims 19-20 distinguish over the Mark reference, the Maes reference, and the Fung reference. Neither of the cited references above, nor any combination thereof, teaches, anticipates, or suggests all of the recited elements of claims 19-20. Therefore, the Examiner's rejection should be withdrawn and it is respectfully submitted that claims 19-20 are in condition for allowance.

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New Independent Claim 21 Is Patentably Distinct In View of Any of the Cited
References Taken Either Singly Or In Any Combination Thereof

Independent claim 21 has been added in order to recite a device type claim that particularly points out and distinctly claims new and novel aspects of the Applicant's invention. Specifically, independent claim 21 recites "at least one acoustic transducer being mechanically tuned to oscillate substantially at its mechanical resonant frequency to substantially maximize audio power output from the at least one tone generator." The particular language recited for new independent claim 21, in combination with all of the elements of Claim 21 taken as a whole, clearly distinguishes over the teachings of the Mark reference, the Maes reference, the Fung reference, and the Paterno reference, either taking each reference singly or in any combination thereof. None of the cited references, either individually or in any combination, teaches, anticipates, or suggests, the "at least one acoustic transducer being mechanically tuned to oscillate substantially at its mechanical resonant frequency to substantially maximize audio power output from the at least one tone generator." As has already been discussed above, for example with respect to the Mark reference, it discloses one transducer (see speaker/microphone 114 of FIG. 2 of the Mark reference). This single transducer of the Mark reference operates over a wide frequency range and is calibrated to operate over this wide frequency band. This wide band operation, to optimally cover audio generation output such as at various frequencies for DTMF generation, etc., with a single transducer (i.e., a speaker), inherently does not operate at substantially the mechanical resonant frequency of the transducer to maximize its audio power output. The transducer of the Mark reference, therefore, is not tuned to operate at substantially its mechanical resonant frequency, as recited for new independent claim 21. This operation at substantially the mechanical resonant frequency, according to the presently claimed invention, is a significant advantage that is not taught, anticipated, or suggested by any of the cited prior art references nor by any combination thereof. The main advantage is it allows maximum audio output while providing the secure access device the ability to significantly conserve battery power to generate such audio output and this helps extend the life of a power source for the device, which is a very desirable

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feature for consumers. See, for example, the discussion in Applicant's specification from page 11, line 19, to page 12, line 14. The substance of the discussion is set forth below for quick reference.

"Maximizing power output of the tuned transducers 324 is an important feature of the present invention with particular value in applications that utilize audio coupling into a network interface to communicate with the secure access central system. For example, via a telephone station, the universal card 112 can be used to generate tone audio output that is audio coupled to the mouthpiece of a telephone station. Since this audio coupling may be less than perfect in most applications, it is important to transmit maximum audio output power to couple into the telephone mouthpiece receiver in less than ideal conditions. For example, in an airport or other public location where there is significant ambient noise, a user of the universal card 112 may be able to hold the card audio output in close proximity to the telephone mouthpiece and still accomplish a reliable delivery of tone signals via the telephone station to the secure access central system.

The universal card 112 through this novel use of selective tone generation circuits and transducers is able to provide a significant tone audio power output for communication, such as via a telephone network, while minimizing the drain on the internal battery power source of the universal card 112. Additionally, the pulse duration limiter 316 can limit the duration of particular tones to a minimum duration required for reliable delivery of the tone signal to the secure access central system. By minimizing the tone duration to its absolute minimum for reliable communication, the universal card 112 additionally conserves battery power and thereby extends battery life, which is an important feature desired by most users."

In view of the foregoing discussion, Applicant respectfully submits that new independent Claim 21 is also allowable and urges the Examiner to allow this claim, along with all the other pending claims, to issue in a patent.

CONCLUSION

The foregoing is submitted as full and complete response to the Official Action mailed September 29, 2003, and it is submitted that Claims 1-21 are in condition for allowance. Reconsideration of the rejections is requested. Allowance of Claims 1-21 is earnestly solicited.

The present application, after entry of this amendment, comprises twenty-one

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(21) claims, including four (4) independent claims. Applicant has previously paid for twenty (20) claims including three (3) independent claims. Applicant, therefore, believes that an additional fee for claims amendment of **\$52** is currently due. The Commissioner is authorized to charge this fee, or if this fee is insufficient then charge the correct fee for claims amendment as may be required, or credit any overpayment, to Deposit Account 50-1556.

If the Examiner believes that there are any informalities that can be corrected by Examiner's amendment, or if it would help expedite the prosecution of this application in any way, a telephone call to the undersigned at (561) 989-9811 is respectfully solicited.

The Commissioner is hereby authorized to charge any fees that may be required or credit any overpayment to Deposit Account 50-1556.

In view of the preceding discussion, it is submitted that the claims are in condition for allowance. Reconsideration and re-examination is requested.

Respectfully submitted.

Dated: December 29 2003

By: 

Jose Gutman
Reg. No. 35,171
Attorney for Applicant

**Please send all correspondence
concerning this patent application to:**

Attention: Jose Gutman
Fleit, Kain, Gibbons, Gutman,
Bongini & Bianco P.L.
551 N.W. 77th Street, Suite 111
Boca Raton, FL 33487
Tel. (561) 989-9811
Fax (561) 989-9812